# Draft Environmental Assessment

## *BCWMA Conifer Expansion and Native Grassland Restoration Project*

***August 2017***


***Montana Fish, Wildlife & Parks***
***Region 2***
***3201 Spurgin Rd, Missoula, MT 59804***
***Phone 406-542-5500***


Montana Fish, Wildlife & Parks

# Draft Environmental Assessment
# MEPA, NEPA, MCA 23-1-110 CHECKLIST

## PART I. PROPOSED ACTION DESCRIPTION

### 1. Type of proposed state action:

Montana Fish, Wildlife & Parks (FWP) proposes to conduct a forest and grassland management project across a project area approximately 2,917 acres in size on the Blackfoot Clearwater Wildlife Management Area (BCWMA). The proposed forest management project would focus on removing conifers--ponderosa pine and Douglas-fir--that have expanded into a rough fescue-bluebunch wheatgrass grassland (native grassland) and ponderosa pine grassland savannah along the western portion of the BCWMA. The treatments would maintain shade-intolerant rough and Idaho fescue, and bluebunch wheatgrass grasslands that were historically maintained by high-frequency, low-intensity fire. The native grassland provides critical winter range for the Blackfoot-Clearwater elk herd that has a current population size of approximately 1,000 animals. Treatments would include complete removal of all encroaching ponderosa pine within Stand Type 1 (1,452 acres), thinning of understory ponderosa pine and Douglas-fir in Stand Type 2 (920 acres), thinning of understory saplings to intermediate-sized ponderosa pine and Douglas-fir within Stand Type 3(545 acres), and removal of all conifers in isolated aspen stands with the exception of larger mature ponderosa pine. Treatments would also include approximately 500-1000 acres of prescribed burning, where appropriate to reduce recruitment of seedling-sized conifers and to reintroduce important ecological disturbance processes to the fescue grasslands and isolated aspen stands.

### 2. Agency authority for the proposed action:

FWP is authorized by State law to own and manage lands as wildlife habitat. The land subject to this proposal is part of the BCWMA, which was originally purchased with funding sources from the Pittman-Robertson Wildlife Restoration Act (P-R). Matching funds for acquisition of the BCWMA were provided by FWP from revenues generated by the sale of Montana hunting licenses. FWP uses budgeted license revenues and P-R matching funds, within spending authority granted each biennium by the Montana legislature, for maintenance of the BCWMA. FWP is authorized to use supplemental funds from various public and private sources, which may be awarded under specific conditions for individual maintenance and enhancement projects on the BCWMA and other properties. The Montana Fish and Wildlife Commission endorsed this proposal in April 2017, allowing FWP to proceed with further development and analysis of this proposed action, including completion of this Environmental Assessment.

BCWMA Management Plan

FWP manages this property primarily to provide important winter range for elk and deer, as outlined and described in the Application for Federal Assistance (Project W-30-L) and Management Plan for the BCWMA (on file at FWP, Region 2). The Management Plan directs FWP to manage for the maximum sustainable utilization of the winter range by elk, mule deer and white-tailed deer following these standards:

- Soil condition and development would be maintained or enhanced;
- Adverse impacts to adjacent landowners would be reduced or mitigated;
- The condition of elk and deer populations would be maintained or enhanced;
- Elk and deer populations would be supported by natural winter forage;

- Adverse impacts on other resources such as fisheries, riparian habitats, water quality, native plant communities, and other animal populations would be avoided or mitigated.

The BCWMA Management Plan directs the Department to pursue opportunities to enhance these resources when compatible with elk and deer management. This Project would meet these standards by maintaining and enhancing native grassland conditions to promote forage quality and quantity, while maintaining components of thermal cover along the north and east portion of the BCWMA. This proposed Project would maintain and enhance native grasslands, ponderosa pine/grassland savannahs, and aspen stands that historically provided winter forage for mule deer and elk but have been severely degraded by conifer encroachment and fire suppression over the last 90 years.

MCA (Montana Code Annotated) § 87-1-201. Powers and duties
(9)(a) The department shall implement programs that: (iv) in accordance with the forest management plan required by § 87-1-622, MCA address fire mitigation, pine beetle infestation, and wildlife habitat enhancement giving priority to forested lands in excess of 50 contiguous acres in any state park, fishing access site, or wildlife management area under the department's jurisdiction.

MCA § 87-1-621. Forest management account
(1) There is a special revenue account called the forest management account to the credit of the department of fish, wildlife, and parks.
(2) The forest management account consists of money deposited into the account from forest management projects undertaken pursuant to § 87-1-622, MCA and from any other source. Any interest earned by the account must be deposited into the account.
(3) Except as otherwise directed by state or federal law, funds from the forest management account must be used by the department to implement forest management projects that may result pursuant to the provisions of § 87-1-622, MCA

The Montana Statewide Elk Management Plan (2005)
The Montana Statewide Elk Plan (pg. 44, paragraph 1) directs FWP to implement habitat projects aimed at, "…maintaining/enhancing the basic productivity of the land – soil, water, and vegetation…" This proposed Project would work toward meeting this goal by restoring aspen stands, removing conifers expanding onto historically open and fire adapted native grasslands and ponderosa pine grassland savannahs, increase production of native grasses in treatment areas, and reduce the probability of high-intensity wildfire events on the WMA.

The Montana State Wildlife Action Plan (SWAP 2015)
The Montana State Wildlife Action Plan identifies Community Types of Greatest Conservation Need and Focal Areas important for wildlife species in Montana that warrant conservation priority. The SWAP can therefore be used as a guiding document for prioritizing where habitat enhancement projects would be best applied. For this project the montane grassland Tier I Community Type would apply.

**3. Name of project:** BCWMA Conifer Expansion and Native Grassland Restoration

**4. Anticipated Schedule:**
Estimated Commencement Date: 01/01/2018
Estimated Completion Date: 02/28/2023
Current Status of Project Design (% complete): 30%

**5. Location affected by proposed action (county, range and township):**

Missoula County
TRS 15N, 14W, Sec 8, 9, 10, 14, 15, 16, 17, 21, 22, 23, 27, 28, 29, & 33
TRS 14N, 14W, Sec 4
Project is located within the Blackfoot Clearwater Wildlife Management Area (Figures 1 & 2).

**6. Project size -- estimate the number of acres that would be directly affected that are currently:**

| | Acres | | Acres |
|---|---|---|---|
| (a) Developed: | | (d) Floodplain | 0 |
| Residential | 0 | | |
| Industrial | 0 | (e) Productive: | |
| (existing shop area) | | Irrigated cropland | 0 |
| (b) Open Space/ | 0 | Dry cropland | 0 |
| Woodlands/Recreation | | Forestry | 1,465 |
| (c) Wetlands/Riparian | 0 | Rangeland | 1,452 |
| Areas | | Other | 0 |

**7. Listing of any other Local, State or Federal agency that has overlapping or additional jurisdiction.**

**(a) Permits:**

Agency Name — Permits - *None required*

**(b) Funding:**

Agency Name Montana FWP
Funding Amount Costs to FWP for these forest habitat restoration treatments are expected to be covered by the Montana Forest Management account pursuant to the provisions of 87-1-201(9)(a)(iv) and matched by additional grant sources. FWP has currently procured a grant from the Rocky Mountain Elk Foundation for the amount of $20,000 to go towards the initial work of this Project.

**(c) Other Overlapping or Additional Jurisdictional Responsibilities:**

| | |
|---|---|
| MT DNRC | Fire Protection |
| Missoula County Weed District | Noxious Weed Control |

**8. Narrative summary of the proposed action or project including the benefits and purpose of the proposed action:**

The Blackfoot Clearwater WMA is located in the Blackfoot Valley of west-central Montana, along both sides of the Missoula-Powell County line, with most of the property lying along the north side of Highway 200 between Blanchard Creek and the North Fork of the Blackfoot River (Figure 1). The nearest communities are Greenough, Seeley Lake, and Ovando. The wood products, ranching and recreation/tourism industries support the local economy. Missoula is the nearest major population center, located approximately 45 miles southwest of the BCWMA.

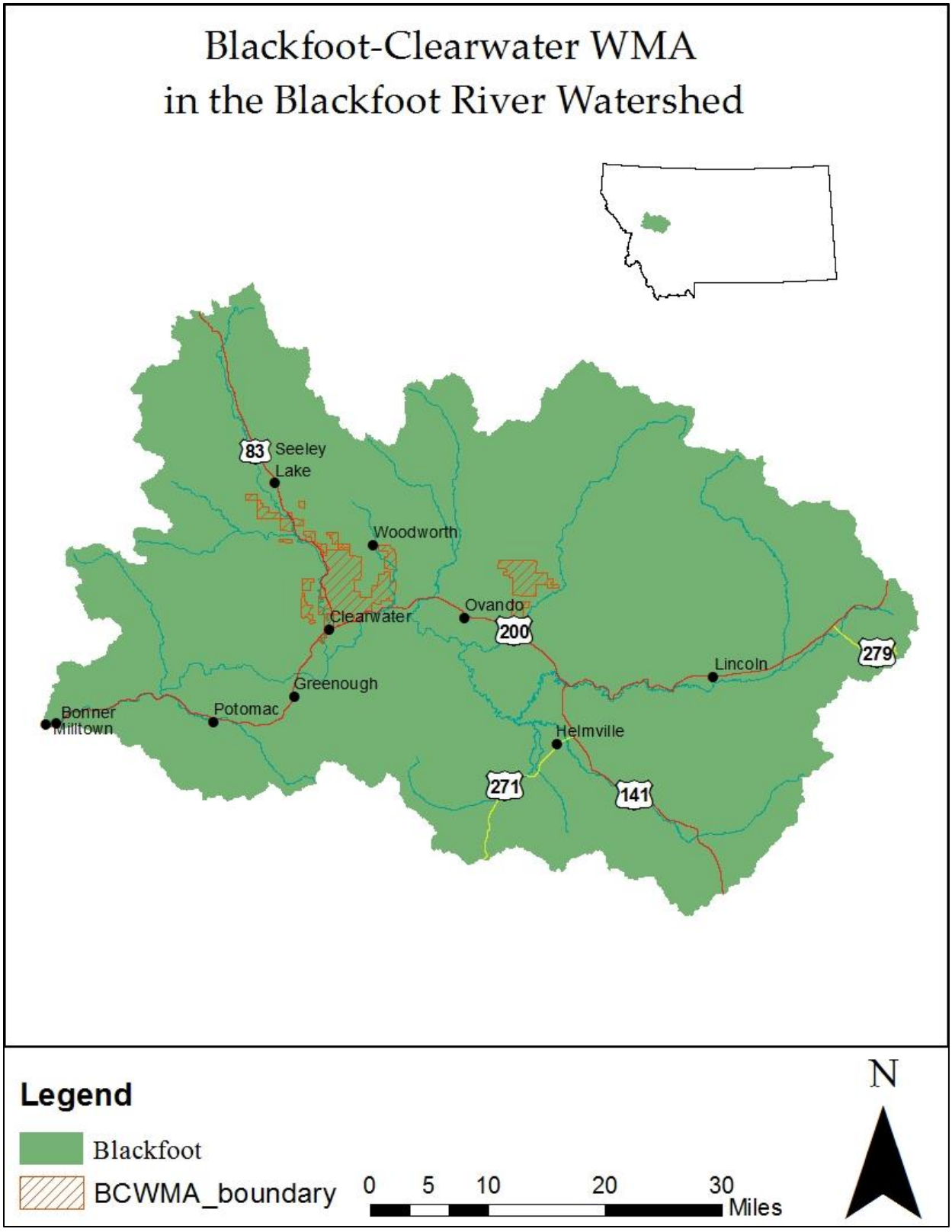


Figure 1. The Blackfoot Clearwater Wildlife Management Area (BCWMA) located in the Blackfoot River Watershed in west-central Montana.

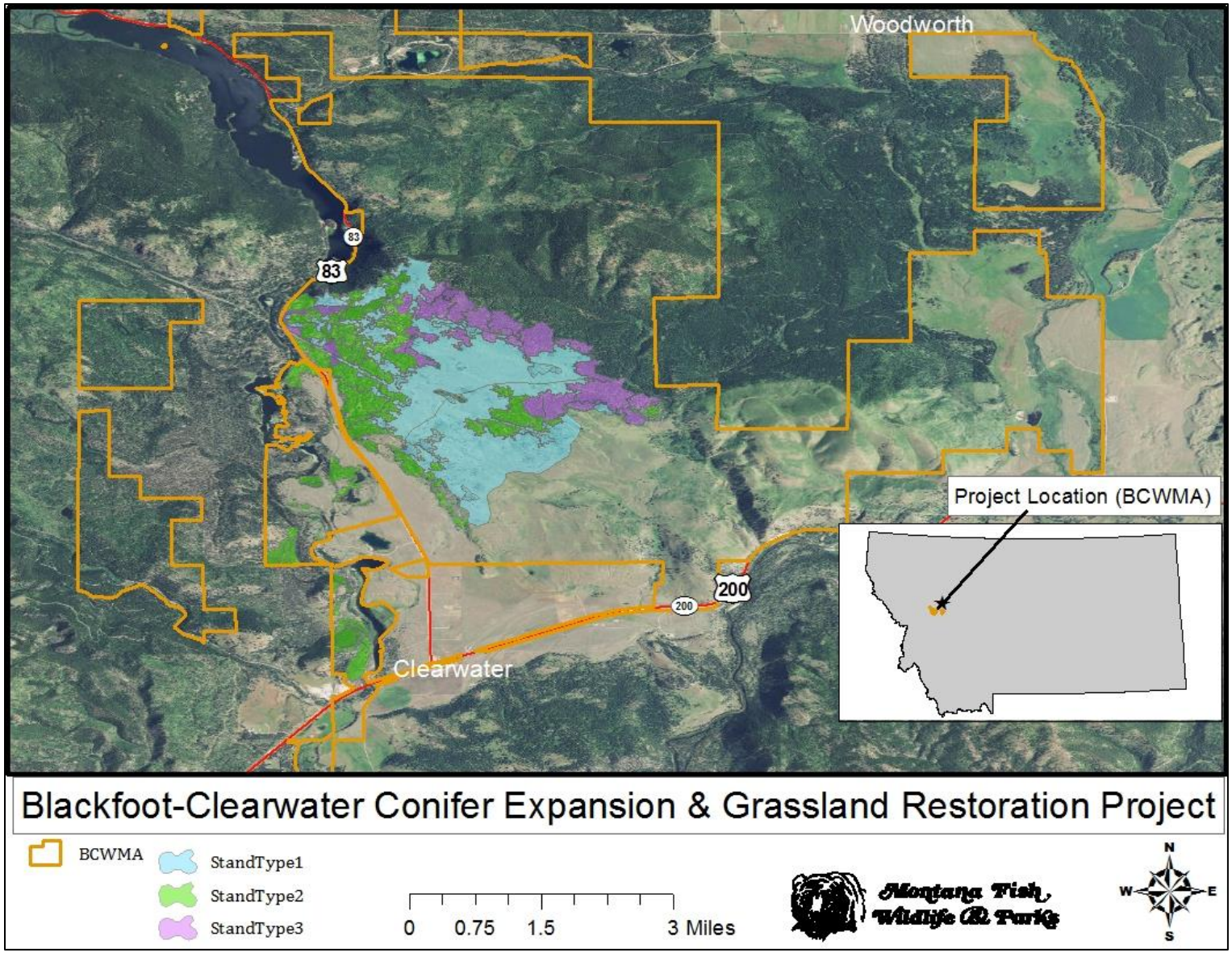


Figure 2. The BCWMA with surrounding landownership and the timber and grassland stands proposed for restoration treatments.

The BCWMA is the core winter range for a partially migratory elk herd with an average annual abundance of approximately 1,000 elk. Elk numbers have increased since 1948 when FWP purchased the BCWMA. At that time, elk numbers were near 200 and have since been restored and enhanced to a high count of 1,183 in 2003. Previous FWP studies of radio-collared elk have documented a yearlong home range of about 500,000 acres for this BCWMA elk herd, with habitually occupied summer ranges extending from the BCWMA into the Bob Marshall Wilderness Area and Mission Mountains. Thus, changes in elk habitat on the BCWMA may directly affect opportunities for the public to hunt and view elk across a much larger area including portions of the Lolo National Forest and accessible state and private lands.

Portions of the BCWMA also provide important winter range for migratory and resident populations of mule deer and white-tailed deer. Moose, black bear, mountain lion, gray wolf, mountain grouse, and furbearing species are common on the property. The BCWMA also provides habitat for the recovering grizzly bear population. Nearly 200 wildlife species were documented on the BCWMA in the 1990s (checklist is available from the FWP's Region 2 headquarters).

The BCWMA comprises about 35,043 acres, with 22,527 acres (64%) in fee-title ownership, 6,849 acres (20%) under FWP conservation easement and owned by DNRC, and 5,675 (16%) leased acres. The lands subject to this proposal lie along the western portion of the BCWMA, mostly east of MT Highway 83 and north of MT Highway 200 (Figures 1 & 2), with some Stand Type 2 work extending to west of the Clearwater River (Figure 2).

Boyd Mountain, at 5,625-feet in elevation, is the main topographic feature of the BCWMA. Douglas-fir forest is the dominant vegetation at upper elevations, grading into ponderosa pine forest around the base of the mountain. Gently south-sloping grasslands, dominated by rough fescue, cover some 5,000 acres, and separate the steeper, south-facing slopes of Boyd Mountain from the lowest elevations along the Clearwater River (approximately 3,840 feet in elevation).

The proposed forest management project would treat a total of 2,917 acres along the western portion of the BCWMA focusing on removal of conifers--ponderosa pine and Douglas-fir--that have expanded into a native fescue grasslands and ponderosa pine grassland savannah. The treatments would maintain shade-intolerant rough fescue--bluebunch wheatgrass grasslands that were historically maintained by high-frequency, low-intensity fire. The fescue grassland provides critical winter range for the Blackfoot-Clearwater elk herd. In Stand Type 2 and 3, treatments would increase production of understory grasses, forbs, and shrubs that provide an important source of forage for wintering deer and elk. Treatments would include complete removal of encroaching ponderosa pine, with the exception of a few mature ponderosa pine occurring on microsites within Stand Type 1, rough fescue-bluebunch wheatgrass grasslands, (1,452 acres). In Stand Type 2, thinning of understory ponderosa pine and Douglas-fir from ponderosa pine grassland savannahs would occur on approximately 920 acres. In Stand Type 3, thinning of understory saplings to intermediate-sized ponderosa pine and Douglas-fir would occur on 545 acres. Finally, all conifers, with the exception of isolated mature ponderosa pine, would be removed within aspen stands. Treatments would also include approximately 500-1000 acres of prescribed burning, where appropriate to reduce recruitment of seedling-sized conifers and to reintroduce important ecological disturbance processes to improve rough fescue–bluebunch wheatgrass grassland and isolated aspen stands, while stimulating shrub regeneration in more forested stands. See **Appendix A, Description of Proposed Treatments and Wildlife Habitat Benefits** for details on project areas selection, project analyses, and stand descriptions.

**9. Description and analysis of reasonable alternatives (including the no action alternative) to the proposed action whenever alternatives are reasonably available and prudent to consider and a discussion of how the alternatives would be implemented:**

**Alternative A: No Action**
If FWP decides not to proceed with the proposed action, the project area on the BCWMA would not be treated. FWP expects that valuable wildlife habitat, including critical ungulate winter-range would continue to deteriorate due to expanding conifers into the rough-fescue grassland and the risk of insects and disease along with uncharacteristically high-intensity wildfire hazard would continue to increase.

**Alternative B: Proposed Action**
FWP would conduct forested and grassland habitat improvement treatments on approximately 2,917 acres of the BCWMA as described in #8 (above) and Appendix A. Following this action, FWP anticipates that critical ungulate winter-range would be maintained through improved grassland condition and increased abundance. Treatment would reduce conifer expansion into the native grassland, and reduce the risk of high-intensity fire events that have the potential to remove the remnant-large overstory trees, damage thin organic soils, slow grass and woody browse recruitment, and pose a significant risk to neighboring landowners.

## PART II. ENVIRONMENTAL REVIEW CHECKLIST

### 1. Evaluation of the impacts of the Proposed Action including secondary and cumulative impacts on the Physical and Human Environment.

## A. PHYSICAL ENVIRONMENT

| 1. LAND RESOURCES<br>Will the proposed action result in: | IMPACT * | | | | | |
|---|---|---|---|---|---|---|
| | Unknown | None | Minor | Potentially Significant | Can Impact Be Mitigated | Comment Index |
| a. **Soil instability or changes in geologic substructure? | | X | | | | |
| b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil, which would reduce productivity or fertility? | | | X | | | 1b |
| c. **Destruction, covering or modification of any unique geologic or physical features? | | X | | | | |
| d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake? | | X | | | | |
| e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard? | | X | | | | |
| f. Other: | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Land Resources (attach additional pages of narrative if needed):**

1b. Short sections of existing roads may need to be improved to facilitate removal of timber and timber byproduct. The aforementioned roads would be improved to Forestry Best Management Practices (BMP) specifications reducing potential impacts to riparian areas or siltation of perennial water bodies. The Project would occur under winter conditions with a minimum snow depth of 18" loose or 12" packed, or during late summer/fall conditions when native grasses are dormant, to reduce soil and vegetation disturbance and compaction.

* Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or cannot be evaluated.

** Include a narrative description addressing the items identified in 12.8.604-1a (ARM).

*** Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

**** Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

| 2. AIR<br><br>Will the proposed action result in: | IMPACT * | | | | | |
|---|---|---|---|---|---|---|
| | Unknown | None | Minor | Potentially Significant | Can Impact Be Mitigated | Comment Index |
| a. **Emission of air pollutants or deterioration of ambient air quality? (Also see 13 (c).) | | | X | | | 2a |
| b. Creation of objectionable odors? | | | X | | | 2b |
| c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally? | | X | | | | |
| d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants? | | X | | | | |
| e. ***For P-R/D-J projects, will the project result in any discharge, which will conflict with federal or state air quality regs? (Also see 2a.) | | X | | | | |
| f. Other: | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Air Resources (attach additional pages of narrative if needed):**

2a, b. Much of the slash and residual byproduct generated during the course of the proposed treatments would be burned on-site. The contractor would be required to hold a Master Hazard Reduction Agreement with DNRC for slash generated from treatment. The contractor would comply with Missoula and Powell County open burning timing restrictions and comply with inter-agency slash treatment regulations.

* Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or cannot be evaluated.

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| 3. WATER<br><br>Will the proposed action result in: | IMPACT * | | | | | |
|---|---|---|---|---|---|---|
| | Unknown | None | Minor | Potentially Significant | Can Impact Be Mitigated | Comment Index |
| a. *Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity? | | X | | | | |
| b. Changes in drainage patterns or the rate and amount of surface runoff? | | | X | | | 3b |
| c. Alteration of the course or magnitude of floodwater or other flows? | | X | | | | |
| d. Changes in the amount of surface water in any water body or creation of a new water body? | | X | | | | |
| e. Exposure of people or property to water related hazards such as flooding? | | X | | | | |
| f. Changes in the quality of groundwater? | | X | | | | |
| g. Changes in the quantity of groundwater? | | X | | | | |
| h. Increase in risk of contamination of surface or groundwater? | | X | | | | |
| i. Effects on any existing water right or reservation? | | X | | | | |
| j. Effects on other water users as a result of any alteration in surface or groundwater quality? | | X | | | | |
| k. Effects on other users as a result of any alteration in surface or groundwater quantity? | | X | | | | |
| l. ****For P-R/D-J, will the project affect a designated floodplain? (Also see 3c.) | | X | | | | |
| m. ***For P-R/D-J, will the project result in any discharge that will affect federal or state water quality regulations? (Also see 3a.) | | X | | | | |
| n. Other: | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Water Resources (attach additional pages of narrative if needed):**

3b. Treating the subject stands may slightly alter the rate and volume of spring runoff and retained snowpack. However, given there is little to no water near the treatment area this effect would be extremely minor.

* Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or cannot be evaluated.

** Include a narrative description addressing the items identified in 12.8.604-1a (ARM).

*** Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

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| **4. VEGETATION**<br><br>**Will the proposed action result in?** | **IMPACT *** | | | | | |
|---|---|---|---|---|---|---|
| | **Unknown** | **None** | **Minor** | **Potentially Significant** | **Can Impact Be Mitigated** | **Comment Index** |
| a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)? | | | X | | | 4a |
| b. Alteration of a plant community? | | | X | | | 4b |
| c. Adverse effects on any unique, rare, threatened, or endangered species? | | X | | | | |
| d. Reduction in acreage or productivity of any agricultural land? | | X | | | | |
| e. Establishment or spread of noxious weeds? | | | X | | | 4e |
| f. ****For P-R/D-J, will the project affect wetlands, or prime and unique farmland? | | X | | | | |
| g. Other: | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Vegetation (attach additional pages of narrative if needed):**

4a, b, e. The Project intent is to restore and diversify vegetation to benefit wildlife habitat condition and reduce the potential for high-intensity wildfire. Please see #8 above for a more detailed description of proposed treatments. Noxious weed spread would be mitigated by requiring equipment to be washed before entering the WMA, minimizing ground disturbance, immediately reseeding disturbed areas, and treating affected areas or areas at risk with herbicide for up to 3 years post-treatment.

* Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or cannot be evaluated.

** Include a narrative description addressing the items identified in 12.8.604-1a (ARM).

*** Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

**** Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

| ** 5. FISH/WILDLIFE<br>Will the proposed action result in: | IMPACT * | | | | | |
|---|---|---|---|---|---|---|
| | Unknown | None | Minor | Potentially Significant | Can Impact Be Mitigated | Comment Index |
| a. Deterioration of critical fish or wildlife habitat? | | X | | | | |
| b. Changes in the diversity or abundance of game animals or bird species? | | | X | | | 5b |
| c. Changes in the diversity or abundance of nongame species? | | | X | | | 5c |
| d. Introduction of new species into an area? | | X | | | | |
| e. Creation of a barrier to the migration or movement of animals? | | X | | | | |
| f. Adverse effects on any unique, rare, threatened, or endangered species? | | X | | | | |
| g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)? | | | X | | | 5g |
| h. ****For P-R/D-J, will the project be performed in any area in which T&E species are present, and will the project affect any T&E species or their habitat? (Also see 5f.) | | | X | | | 5h |
| i. ***For P-R/D-J, will the project introduce or export any species not presently or historically occurring in the receiving location? (Also see 5d.) | | X | | | | |
| j. Other: | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Fish and Wildlife:**

5b, c, g. Some wildlife would be temporarily displaced from the Project area while treatments are ongoing. Large and mobile species would likely move to secure, adjacent habitat. Treatments would occur in winter when most migratory bird species would not be present.

Three federally Threatened and one federally Endangered species occur in the vicinity of the Project area.

*Canada lynx* – Stands proposed for treatment are located on low elevation, open and dry sites with moderate to low winter snow depths. There are no records of lynx detections on or immediately adjacent to the Project area and forest composition and grasslands are ideal habitat conditions for lynx occupancy.

*Grizzly bear* – Grizzlies are commonly observed on and adjacent to the Project area. They are most sensitive to disturbance during the spring post-emergence period; while the proposed treatments are would occur during winter, during their usual denning period. The Project area is already managed for extremely low open-road densities and there would be no net increase in open-road densities as a result of this Project. Contractors would not reside on site and would comply with standing Food Storage Orders. In some stand types, FWP expects treatments to improve serviceberry, chokecherry, hawthorn, huckleberry and forb production; these are all important summer/fall bear forage species.

* Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or cannot be evaluated.

** Include a narrative description addressing the items identified in 12.8.604-1a (ARM).

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*Bull trout* – Bull trout occur and spawn in the Clearwater River. No bull trout streams would be affected by the proposed treatments and no increase in sediment delivery to bull trout streams is anticipated as a result.

## B. HUMAN ENVIRONMENT

| 6. NOISE/ELECTRICAL EFFECTS<br>Will the proposed action result in: | IMPACT * | | | | | |
|---|---|---|---|---|---|---|
| | Unknown | None | Minor | Potentially Significant | Can Impact Be Mitigated | Comment Index |
| a. Increases in existing noise levels? | | | X | | | 6a |
| b. Exposure of people to serve or nuisance noise levels? | | | X | | | 6b |
| c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property? | | X | | | | |
| d. Interference with radio or television reception and operation? | | X | | | | |
| e. Other: | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Noise/Electrical Effects (attach additional pages of narrative if needed):**

6a, b. Logging and trucking equipment would increase noise levels on the Project area while activities are ongoing. The Project area is relatively remote; the nearest occupied residence is >1/4 mile away. Merchantable timber byproducts would be transported out the west entrance to the BCWMA onto MT Hwy 83.

* Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or cannot be evaluated.

** Include a narrative description addressing the items identified in 12.8.604-1a (ARM).

*** Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

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| 7. LAND USE<br>Will the proposed action result in: | IMPACT * | | | | | |
|---|---|---|---|---|---|---|
| | Unknown | None | Minor | Potentially Significant | Can Impact Be Mitigated | Comment Index |
| a. Alteration of or interference with the productivity or profitability of the existing land use of an area? | | X | | | | |
| b. Conflicted with a designated natural area or area of unusual scientific or educational importance? | | X | | | | |
| c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action? | | X | | | | |
| d. Adverse effects on or relocation of residences? | | X | | | | |
| e. Other: | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Land Use (attach additional pages of narrative if needed):**

7. The proposed Project implements the BCWMA's Management Plan. The Project Area lies in a matrix of State, federal, and private ownerships that also actively manage their forested land.

| 8. RISK/HEALTH HAZARDS<br>Will the proposed action result in: | IMPACT * | | | | | |
|---|---|---|---|---|---|---|
| | Unknown | None | Minor | Potentially Significant | Can Impact Be Mitigated | Comment Index |
| a. Risk of an explosion or release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption? | | X | | | | |
| b. Affect an existing emergency response or emergency evacuation plan, or create a need for a new plan? | | X | | | | |
| c. Creation of any human health hazard or potential hazard? | | | X | | | 8c |
| d. ***For P-R/D-J, will any chemical toxicants be used? (Also see 8a) | | X | | | | |
| e. Other: | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Risk/Health Hazards (attach additional pages of narrative if needed):**

8c. Timber management activities are inherently dangerous. All contractors would be required to be certified as Accredited Logging Professionals with the Montana Logging Association. During periods of burning, air quality may be reduced temporarily. FWP would follow all county and state burning restrictions.

* Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or cannot be evaluated.

** Include a narrative description addressing the items identified in 12.8.604-1a (ARM).

*** Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

**** Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

| 9. COMMUNITY IMPACT<br><br>Will the proposed action result in: | IMPACT * | | | | | |
|---|---|---|---|---|---|---|
| | Unknown | None | Minor | Potentially Significant | Can Impact Be Mitigated | Comment Index |
| a. Alteration of the location, distribution, density, or growth rate of the human population of an area? | | X | | | | |
| b. Alteration of the social structure of a community? | | X | | | | |
| c. Alteration of the level or distribution of employment or community or personal income? | | | X | | | 9c |
| d. Changes in industrial or commercial activity? | | | X | | | 9d |
| e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods? | | | X | | | 9e |
| f. Other: | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Community Impact (attach additional pages of narrative if needed):**

9c, d, e. This Project would create or sustain local jobs while the Project is ongoing. The Project would also benefit the successful applicant. Log hauling and contractor traffic would increase during the Project. Roads and other infrastructure that would be used by contractors were designed (and would be maintained) to support commercial logging and log transport activities.

* Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or cannot be evaluated.

** Include a narrative description addressing the items identified in 12.8.604-1a (ARM).

*** Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

**** Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

| 10. PUBLIC SERVICES/TAXES/UTILITIES<br><br>Will the proposed action result in: | IMPACT * | | | | | |
|---|---|---|---|---|---|---|
| | Unknown | None | Minor | Potentially Significant | Can Impact Be Mitigated | Comment Index |
| a. Will the proposed action have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify: | | X | | | | |
| b. Will the proposed action have an effect upon the local or state tax base and revenues? | | | X | | | 10b |
| c. Will the proposed action result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications? | | X | | | | |
| d. Will the proposed action result in increased use of any energy source? | | | X | | | 10d |
| e. **Define projected revenue sources | | X | | | | |
| f. **Define projected maintenance costs. | | X | | | | |
| g. Other: | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Public Services/Taxes/Utilities (attach additional pages of narrative if needed):**

10b, d. The Project would increase state and local tax revenues from the sale of fuel and equipment and from employees' income. Fuel and electricity would be required to treat stands and process the timber byproduct.

* Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or cannot be evaluated.

** Include a narrative description addressing the items identified in 12.8.604-1a (ARM).

*** Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

**** Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

| ** 11. AESTHETICS/RECREATION<br>Will the proposed action result in: | IMPACT * | | | | | |
|---|---|---|---|---|---|---|
| | Unknown | None | Minor | Potentially Significant | Can Impact Be Mitigated | Comment Index |
| a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view? | | | X | | | 11a |
| b. Alteration of the aesthetic character of a community or neighborhood? | | X | | | | |
| c. **Alteration of the quality or quantity of recreational/tourism opportunities and settings? (Attach Tourism Report.) | | X | | | | |
| d. ***For P-R/D-J, will any designated or proposed wild or scenic rivers, trails or wilderness areas be impacted? (Also see 11a, 11c.) | | X | | | | |
| e. Other: | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Aesthetics/Recreation (attach additional pages of narrative if needed):**

11a. Some treated stands may be visible from nearby public roads. The Project's intent is to restore stands to more closely approximate historic conditions. No new roads would be constructed. The risk of catastrophic wildfire, which would also modify the scenic vista, would be reduced.

| 12. CULTURAL/HISTORICAL RESOURCES<br>Will the proposed action result in: | IMPACT * | | | | | |
|---|---|---|---|---|---|---|
| | Unknown | None | Minor | Potentially Significant | Can Impact Be Mitigated | Comment Index |
| a. **Destruction or alteration of any site, structure or object of prehistoric historic, or paleontological importance? | | X | | | | |
| b. Physical change that would affect unique cultural values? | | X | | | | |
| c. Effects on existing religious or sacred uses of a site or area? | | X | | | | |
| d. ****For P-R/D-J, will the project affect historic or cultural resources? Attach SHPO letter of clearance. (Also see 12.a.) | | X | | | | |
| e. Other: | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Cultural/Historical Resources (attach additional pages of narrative if needed):**

* Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or cannot be evaluated.

** Include a narrative description addressing the items identified in 12.8.604-1a (ARM).

*** Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

**** Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

## SIGNIFICANCE CRITERIA

| 13. SUMMARY EVALUATION OF SIGNIFICANCE<br><br>Will the proposed action, considered as a whole: | IMPACT * | | | | | |
|---|---|---|---|---|---|---|
| | Unknown | None | Minor | Potentially Significant | Can Impact Be Mitigated | Comment Index |
| a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources that create a significant effect when considered together or in total.) | | | X | | | |
| b. Involve potential risks or adverse effects, which are uncertain but extremely hazardous if they were to occur? | | | | X | X | 13b |
| c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan? | | X | | | | |
| d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed? | | | X | | | 13d |
| e. Generate substantial debate or controversy about the nature of the impacts that would be created? | | | X | | | 13e |
| f. ***For P-R/D-J, is the project expected to have organized opposition or generate substantial public controversy? (Also see 13e.) | | X | | | | |
| g. ****For P-R/D-J, list any federal or state permits required. | | X | | | | |

**Narrative Description and Evaluation of the Cumulative and Secondary Effects on Significance Criteria (attach additional pages of narrative if needed):**

13 b, d, e. This Project would improve native wildlife habitat, specifically deer and elk conditions, restore historic forest and grassland characteristics, and reduce the risk of high-intensity wildfire on and adjacent to the BCWMA. Project treatments are directly adjacent to and enhanced by recent forest management projects conducted on DNRC lands.

Prescribed fire has potential to benefit many of the native vegetation communities involved with the proposed Project. However, prescribed fire, if not carefully managed, may expand beyond the boundaries of the proposed treatment area and could affect adjacent land. FWP would mitigate this by working with a combination federal and state government firefighting agencies, local municipal firefighters, and/or private fire management contractors to develop a burning plan and follow that plan in order to minimize all risks.

This Project has been discussed with and has the support of agency partners, neighboring landowners and interested publics.

* Include a narrative explanation under Part III describing the scope and level of impact. If the impact is unknown, explain why the unknown impact has not or cannot be evaluated.

** Include a narrative description addressing the items identified in 12.8.604-1a (ARM).

*** Determine whether the described impact may result and respond on the checklist. Describe any minor or potentially significant impacts.

**** Include a discussion about the issue in the EA narrative and include documentation if it will be useful.

## PART III. NARRATIVE EVALUATION AND COMMENT

The BCWMA Conifer Expansion and Native Grassland Restoration Project would begin to implement the intent of the BCWMA Management Plan and FWP land management statute. Specifically, it would improve elk and deer winter range on the BCWMA, and restore fire-adapted grasslands and forest stands closer to historic condition on Project lands.

## PART IV. PUBLIC PARTICIPATION

**1. Describe the level of public involvement for this project if any, and, given the complexity and the seriousness of the environmental issues associated with the proposed action, is the level of public involvement appropriate under the circumstances?**

The public would be notified in the following manners to comment on the BCWMA Conifer Expansion and Native Grassland Restoration Project, and this current Draft EA including the Proposed Action and alternatives:

- Legal notice would be published one each in these newspapers: *Independent Record* (Helena; FWP's newspaper of record), *Missoulian* (Region 2 FWP's newspaper of record), and *Seeley Swan Pathfinder* (Seeley Lake, local project-area newspaper).
- Public notice would be posted on FWP's webpage http://fwp.mt.gov ("News," then "Recent Public Notices"); the Draft EA would also be available on that webpage, along with the opportunity to submit comments online.
- Copies of this draft EA may be obtained by mail from Region 2 FWP, 3201 Spurgin Rd., Missoula 59804; by phoning 406-542-5540; by emailing shrose@mt.gov; or by viewing FWP's Internet website http://fwp.mt.gov ("Public Notices," beginning August 2).
- A news release would be prepared and distributed to a standard list of media outlets interested in FWP Region 2 issues.
- Copies of this environmental assessment would be distributed to adjacent landowners and interested parties (individuals, groups, agencies) to ensure their knowledge of the Proposed Action.

This level of public notice and participation is appropriate for a project of this scope having limited impacts, many of which can be mitigated.

A. Duration of comment period:

The public comment period would extend for thirty (30) days. Written comments will be accepted until 5:00 p.m. on August 31, 2017 [1] and can be mailed to the address below:

Montana Fish, Wildlife & Parks
Region 2, Attn: Sharon Rose
3201 Spurgin Rd
Missoula, MT 59804

Or phoned to: (406) 542-5540

Or emailed to: shrose@mt.gov

[1] Original deadline of August 28 was extended to August 31 because the Draft EA was not posted online until August 2.

For specific questions about the proposal's details, contact project biologist Scott Eggeman, by phone to 406-542-5542 or email to seggeman@mt.gov.

## PART V. EA PREPARATION

**1. Based on the significance criteria evaluated in this EA, is an EIS required? (YES/NO)? If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action.**

No. Based upon the above assessment which has identified a limited number of minor impacts and one potentially significant impact to the physical and human environment that would be either for a short duration or that the affects of the proposed Project can be mitigated below the level of significance, an EIS in not required and an environmental assessment is the appropriate level of review.

**2. Name, title, address and phone number of the person(s) responsible for preparing the EA:**

Scott Eggeman
Wildlife Biologist
FWP, Region Two
PO Box 15 Seeley Lake, MT 59868
(406) 542-5542

**3. List of entities consulted during preparation of the EA:**

MT DNRC
U. S. Forest Service
U. S. Fish and Wildlife Service

# Appendix A

# Description of Proposed Treatments and Wildlife Habitat Benefits

*Treatment Area Selection and Project Development*

**Coarse Filter Analysis**:

The coarse filter approach takes into consideration the broader landscape surrounding the BCWMA while incorporating the BCWMA as a large-scale functioning ecosystem. We used a Geographic Information System (GIS; ArcGIS 10.1) to evaluate spatial information at the landscape or watershed scale. For this analysis, we combined four watersheds delineated at the 6-digit Hydrologic Unit Code (HUC 6). Publicly available spatial information provides an assessment tool that describes current vegetation conditions and successional classes (Sclass). We then compared current conditions to expected historical conditions (Biophysical Settings) highlighting areas that are described as outside the historical range, also known as ecological departure. This level of analyses provided FWP's wildlife biologist and forester with a tool to prioritize an appropriate treatment area (Figure A1; *not that Figures A1-A3, A5-A7 are placed at the end of this Appendix*).

The greatest departure in Sclass within the coarse-scale project area has occurred in Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest - Ponderosa Pine-Douglas-fir where mid-seral closed Sclass is overrepresented by 66.4% while mid-seral open Sclass is underrepresented by 28.5% and late-seral open Sclass is underrepresented by 35%. The representation in this biophysical setting results in an uncharacteristic closed stand with an overabundance of young (mid-seral) ponderosa pine and Douglas-fir. Any overrepresentation or underrepresentation at such a high level within this biophysical setting potentially reduces habitat quality for many wildlife species, some of which are Species of Concern[2] (SOC). Furthermore, the overrepresentation of the mid-seral closed Sclass likely reduces forage for big-game species on their winter range. A detailed description of analysis results can be found in Table A1.

**Mesofilter Analysis:**

Once our treatment area was identified, the mesofilter approach targeted key habitat elements that the proposed treatment would affect. This level of analyses includes components identified in Terrestrial Focal Areas and Community Types of Greatest Conservation Need as specified by the SWAP (Figures A2 & A3). This would also include analyses at the ecological setting scale, for this project, mountain foothills big-game winter range would be the appropriate ecological setting. Specific habitat components for this ecological setting include thermal and hiding cover, forage, security areas, and daily movement corridors. This proposal includes portions of each of the previously mentioned habitat components and describes how those components would be addressed in the Stand and Treatment Descriptions below. The term ecological setting refers to, and is analogous to, community type and ecological system throughout this document. The terms differ depending on the reference document.

[2] A native animal breeding in Montana that is considered "at risk" due to declining population trends, threats to its habitats, and/or restricted distribution. The purpose of Montana's SOC listing is to highlight species in decline and encourage conservation efforts to reverse population declines and prevent the need for future listing as Threatened or Endangered Species under the Federal Endangered Species Act.

**Fine-filter Analysis:**

Fine-filter analysis focused on priority species criteria that were not considered in the coarse and mesofilter analyses. For the proposed project, we identified several species that would be affected by the proposed treatments (Table A1). The stand descriptions and desired future conditions explain how we intend to meet species-level requirements (fine-filter) for the proposed project.

**Table A1.** Wildlife species identified as focal species strongly associated with the ecological settings of this project area and desired wildlife habitat components to base project outcomes on within the treatment area

| Species name | Habitat components | Treatment specifications | Literature reviewed |
|---|---|---|---|
| Elk | forage, snow intercept & thermal cover | Reduce conifer expansion on open native grasslands, maintain and enhance browse species, maintain 40-100% canopy cover to promote mature forest characteristics. | Carter 1984, Eon 2004, Koncerak 1996, Skovlin et al. 2002 |
| Mule Deer | forage, snow intercept & thermal cover | Improve browse and forb diversity and graminoid production, reduce conifer expansion into native grasslands, promote mature forest characteristics in Stand Type 2 & 3, | Baty 1996, Mackie et al. 1998 |
| Great Gray Owl | forage, nesting sites | Leave medium to large diameter snags and occasional malformed trees, leave a patchy distribution in Stand Types 2 & 3 by skipping every other stand or staggering treatments, leave downed woody debris for foraging sites and promote an open understory typical of mature forests in this ecological setting. | Bull & Henjum 1990, Duncan & Heyward 1994, Whitfield & Gaffney 1997 |
| Flammulated Owls | Forage, nesting sites | Retain large diameter ponderosa pine and Douglas-fir trees and thin young Douglas-fir in-growth to promote mature forest structure. | Rowland et al. 1992 |

***Stand and Treatment Descriptions – Desired Future Conditions***

Stand Type 1 – Fescue grassland with conifer expansion:

This stand type consists of 30- to 40-year old ponderosa pine, low to moderately stocked, growing in areas that were historically fire-maintained rough fescue - bluebunch wheatgrass grasslands. The average DBH of ponderosa pine trees is 10 inches and average height is 30 feet. Canopy coverage is highly variable ranging from 5% to 50% with an average of 20%. Average basal area per acre is approximately 20 sq. ft. but again, is highly variable. This stand is single-storied and even-aged. Snags and downed wood are non-existent due to the expansive nature of the trees.

Insects and disease issues are insignificant in this stand. Some minor mountain pine beetle activity occurred in pockets but no activity is evident since 2013. Current mountain pine beetle susceptibility is low due to the size, age, and density of trees.

Historically, the role of fire in this stand type was to maintain grasslands in areas that, while capable of supporting ponderosa pine, would remain treeless through frequent burning (Fischer and Bradley 1987). In terms of fire risk, potential for crown fire is low due to the clumpy stocking and the generally flat terrain. However, abnormally hot and windy conditions would create favorable conditions for stand replacement fire to occur which would be detrimental to the rough fescue grassland. Fire damage can be particularly severe and mortality can occur where reduced fire frequencies have produced heavy litter buildups within large diameter rough fescue crowns (Antos et al. 1983).

The desired future condition of this stand type is a restored healthy fescue grassland. The short-term objective of this treatment is to remove the expanding ponderosa pine that are competing with and shading out the rough fescue and Idaho fescue bunchgrasses (Figure A4). The long-term objective is to restore frequent fire to maintain the stand as native grassland.

**Figure A4.** Photo demonstrating stressed rough fescue under a canopy of young ponderosa pine that has expanded onto the grasslands. Rough fescue is a shade-intolerant grass species that thrives in exposed, low-elevation environments.

Once restored the native-fescue bluebunch wheatgrass grasslands would benefit multiple game and non-game wildlife species. Rough fescue has one of the highest values as late fall, winter, and early spring forage for elk, mule deer, and white-tailed deer relative to other available forages during that time. There are 25 Species of Concern or Potential Species of Concern identified as being associated or strongly associated with this ecological classification according to the Montana Natural Heritage Program website. The Montana Statewide Wildlife Action Plan (SWAP) lists 28 Species of Greatest Conservation Need (SGCN) within this community type.

*Stand Type 1 Prescription*:

- Silvicultural system: Not applicable
- Silvicultural prescription: Improvement cutting
- Harvest system – Ground-based. Winter logging required. Operations restricted to periods when a minimum snow depth of 18 inches (loose) or 12 inches (packed) occur.
- Desired leave trees and spacing: Reserve trees to be left are the occasional snags and old, large diameter ponderosa pine that occur on microsites mostly as individuals and small groups. There is approximately 1 of these trees per 10 acres.
- Forest fuels treatment: All trees (except reserves) are required to be cut, skidded, processed, and hauled if they contain a 12-foot log to a 2-inch top. Smaller trees may be utilized. Slashing of sub-merchantable trees greater than 1 foot tall is required. Slash and submerchantable material would be disposed through a combination of piling and burning, lopping and scattering within the treatment unit, and/or grinding and hauling material to a biomass facility.
- Post-treatment condition: Only reserve trees, as defined above, shall remain. Most slash would be disposed of so only scattered slash would remain.
- Fire may be applied post-treatment to improve the condition of the grassland
- Prescribed fire would be condition dependent and could occur Mar 1 – Apr 15 or Oct 15 – Nov 30.

<u>Stand Type 2 – ponderosa pine/fescue forest stands:</u>

This stand type occurs on the ponderosa pine/Idaho fescue-rough fescue phase habitat type. The stand is low to moderately stocked with older, remnant ponderosa pine (commonly referred to as yellow pine) and varying levels of younger ponderosa pine in-growth (commonly referred to as bull pine) with mostly fescue grasses dominant in the understory. The average age of the yellow pine is 180 years and the average age of the bull pine is 30 to 40 years. The average DBH of the yellow pine is 24 inches and the bull pine is 10 inches. The average height of yellow pine is 110 feet and the bull pine is 30 feet. Canopy coverage is variable ranging from 25% up to 75% where bull pine in-growth occurs. The average basal area per acre ranges from 50 sq. feet up to 160 sq. feet. This stand is two-storied and uneven-aged. Snag distribution is variable consisting of scattered individual yellow pine snags at densities less than 1 per acre and clumps of dead bull pine ranging from 0 to 100 per acre. Downed woody debris is also variable ranging from less than 5 up to 25 tons per acre.

Insect issues are more significant in this stand type than in Stand Type 1. Pockets of dead and downed bull pine resulting from mountain pine beetle infestation occur across approximately

15% of the stand. Most of the infestation occurred before 2013. The susceptibility of trees to future mountain pine beetle mortality is low where the basal area per acre is closer to 50 sq. ft. and higher where the basal area per acre is greater than 90 sq. feet.

Historically, the role of fire in this stand type was to maintain open ponderosa pine stands. The open condition is perpetuated by periodic fires that either reduce the number of seedlings, remove dense understories of sapling or pole-sized trees, or thin overstory trees (Fischer and Bradley 1987). In terms of fire risk, potential for crown fire is low in open, yellow pine stands and significantly higher where in-growth occurs. Where denser in-growth is occurring, sufficient ladder fuels exist increasing the threat to the older yellow pine in the event of a fire.

The desired future condition of this stand is to restore or maintain open stands of ponderosa pine, favoring yellow pine. The short-term objective of this treatment is to remove most of the bull pine in-growth that is creating hazardous ladder fuels and threatening older yellow pine. Removing the bull pine to promote the growth and reestablishment of fescue grasses is also desired. The long-term objective is to restore frequent fire to maintain the stand as an open ponderosa pine stand.

This stand type's ecological system is classified as Rocky Mountain Pine and Woodland Savanna under the Montana Natural Heritage Program's designation. Priority wildlife species for this ecological system within the project area include deer and elk, great grey owl, flammulated owl, northern goshawk, and 35 SOC and 8 PSOC. There are an additional 47 SGCN associated with this community type within the SWAP.

*Stand Type 2 Prescription*:

- Silvicultural system: Uneven-aged
- Silvicultural prescription: Thinning from below
- Harvest system – Ground-based. A combination of winter logging and/or late-summer through fall logging (when grasses are dormant) would be required to prevent damage to native bunchgrasses.
- Desired leave trees and spacing: All live yellow pine and yellow pine snags are required to leave. Some recruitment of bull pine is desired. Dominant bull pine, with a live crown ratio greater than 40% and exhibiting superior vigor, growth, crown form, and crown color should be left only if they are spaced 60 feet or greater from a yellow pine.
- Forest fuels treatment: All trees (except leave trees) are required to be cut, skidded, processed, and hauled if they contain a 12 foot log to a 2 inch top. Smaller trees may be utilized. All sound bull pine snags and downed logs of the same utilization specifications shall be utilized. Slashing of submerchantable trees greater than 1 foot tall is required. Slash and submerchantable material would be disposed through a combination of piling and burning, lopping and scattering within the treatment unit, and/or grinding and hauling material to a biomass facility.
- Post-treatment condition: The residual trees should be predominantly yellow pine and the density should be clumpy and variable. Average basal area per acre should be 50 sq. ft. but would likely vary from 10 to 90 sq. ft. depending on the density of the existing yellow pine clumps. Healthy bull pine should be left in openings and spaced a minimum of 60 feet from a yellow pine. Slash would be disposed of so only scattered slash would remain.

- Operating period: Winter operating period would be December 1 through March 1 of each year. Summer operating period is July 1 through August 31. Prescribed fire would be condition dependent and could occur Mar 1 – Apr 15 or Oct 15 – Nov 30.

Stand Type 3 – Well stocked second growth ponderosa pine/Douglas-fir stands:

This stand type occurs predominantly on the Douglas-fir/snowberry habitat type. The stand is well stocked with second growth ponderosa pine (60%) and Douglas-fir (40%). Occasional western larch and lodgepole pine occur as well as spruce on moist microsites. Snowberry is the dominant understory shrub and Oregon grape, elk sedge, kinnikinnick, and serviceberry are conspicuous. Previous logging occurred in parts of this stand sometime prior to the acquisition by Fish, Wildlife, and Parks in 1948. The harvest focused on the large ponderosa pine and very few of these trees remain in the stand. The average age of the stand is 70 years. The average DBH is 12 inches and the average height is 60 feet. Canopy coverage is more uniform than other stands averaging 50% to 75%. The average basal area per acre is approximately 140 sq. feet. This stand is multi-storied and uneven-aged. Snag distribution is clumpy and mostly consists of bull pine snags ranging from 0 to 25 per acre. Downed woody debris is also variable ranging from to 5 to 25 tons per acre.

Insect issues are similar to Stand Type 2 with pockets of dead and downed bull pine resulting from mountain pine beetle infestation occurring before 2013. The susceptibility to future mountain pine beetle mortality remains high, especially where ponderosa pine is dominant.

Historically, the role of fire in this stand type was to maintain open ponderosa pine stands but there were additional effects. Frequent fires in seral stands maintained a ponderosa pine "fire climax" condition by killing fire-susceptible Douglas-fir seedlings. In this role, fire frequency largely determined the stand composition. Following a prolonged fire-free period, Douglas-fir regeneration became established beneath the canopy. A ground or surface fire that reached a thicket of saplings and small poles could ascend into the overstory, killing or injuring adjacent mature trees through the vegetative "fuel ladder." Fuel ladders increased the potential destructiveness of a fire by providing access to the canopy. During periods of high fire danger, this often resulted in a stand-destroying crown fire. (Fischer and Bradley 1987). In terms of current fire risk, potential for crown fire is moderate to high. In clumpier areas the ladder fuels are discontinuous and potentially less hazardous but areas with more continuity are at greater risk of stand replacement in the event of a fire.

Two desired future conditions of this stand are needed because it provides both foraging and thermal cover to wintering elk. Enhancing the health and vigor of ponderosa pine is desired for the long-term sustainability of forest cover. Maintaining areas of dense Douglas-fir is also desired for providing thermal and security cover, and winter forage elk and deer. The short-term objective of this treatment is to thin around dominant and co-dominant ponderosa pine to improve growth and vigor and reduce the risk that they would be killed by mountain pine beetle or crown fire. Approximately half of the stand should remain untreated to provide thermal cover, favoring Douglas-fir. The long-term objective is to maintain a mosaic of dense and open forest by using uneven-aged management techniques.

This ecological setting is considered important for the same list of species as Stand Type 2.

*Stand Type 3 Prescription*:

- Silvicultural system: Uneven-aged
- Silvicultural prescription: Group selection
- Harvest system – Ground-based.
- Desired leave trees and spacing: Group selection should focus on areas within the stand where dominant and codominant ponderosa pine would benefit from removal of the intermediate and suppressed trees within the group. The goal is to create openings of variable size with dominant and codominant ponderosa pine left in the openings and spaced 30 to 45 feet apart. Approximately 50% percent of the stand should remain untreated, focusing on dense Douglas-fir patches. All live yellow pine and yellow pine snags are required to leave.
- Forest fuels treatment: Within group selections, all trees (except leave trees) are required to be cut, skidded, processed, and hauled if they contain a 12-foot log to a 2-inch top. Smaller trees may be utilized. Within group selections, all sound bull pine snags and downed logs of the same utilization specifications shall be utilized. Within group selections, slashing of submerchantable trees greater than 1 foot tall is required. Slashing of logging damaged trees is required. Slash and submerchantable material would be disposed through a combination of piling and burning, lopping and scattering within the treatment unit, and/or grinding and hauling material to a biomass facility. Post-treatment condition: Variably sized and spaced openings should be created on approximately half of this stand type, while the other half of the stand would be untreated. Within the openings, some dominant and codominant ponderosa pine should remain and the spacing should be approximately 30 to 45 feet. Within the openings and on forwarder trails, slash would be piled and burned so only scattered slash would remain.
- Operating period: Winter operating period would be December 1 through March 1 of each year. Summer operating period is July 1 through August 31. Prescribed fire would be condition dependent and could occur Mar 1 – Apr 15 or Oct 15 – Nov 30.

<u>Other Stand Types--Quaking aspen stands:</u>

This stand type is interspersed primarily within Stand Types 2 and 3. Aspen is found in small clumps of less than 1/10$^{th}$ acre up to 4 acres within the project area. The condition of these stands is generally poor due to both lack of disturbance that that produces new clones and from conifer expansion. Suckering is variable and is heavily browsed where it occurs. Aspen is an important component of the project area because provides habitat for wide variety of wildlife and is an important browse species for elk.

The desired future condition for aspen stands is to enhance growth and vigor and promote reproduction. Removing encroaching conifers is desired because aspen is shade intolerant. Ground disturbance is desired to encourage reproduction and should be accomplished through ground-based harvesting and burning.

Aspen stands provide forage, cover, and nesting habitat for numerous wildlife species and have a disproportionate value relative to their representation on the landscape. There are up to 32 SGCN within these stand types with an additional 18 SOC and 10 PSOC.

*Quaking Aspen Stand Prescription*:

- Silvicultural system: Uneven-aged
- Silvicultural prescription: Improvement cutting
- Harvest system – Ground-based.
- Desired leave trees and spacing: Within aspen stands, remove all conifers less than 24 inches DBH that are within the drip line of an aspen or where an aspen occurs beneath the drip line of a conifer. Additional large trees (approximately 1 to 2 per acre) would be left to provide drumming logs for grouse. Submerchantable trees would be felled within and around the outside of aspen stands to discourage ungulate browsing.
- Forest fuels treatment: All trees (except leave trees) are required to be cut, skidded, processed, and hauled if they contain a 16 foot log to a 2 inch top. Slashing of submerchantable trees greater than 1 foot tall is required. No piling and burning required, instead slash should be lopped and scattered within the aspen stand to create a fuel bed to carry a broadcast burn. Burning could occur Mar 1 – Apr 1 or Oct 15 – Nov 30.
- Post-treatment condition: Within aspen stands, only conifers greater than 24 inches DBH should remain. One to two large downed logs per acre would be felled and left within stands for grouse drumming logs. Submerchantable material would be left within the stand and broadcast burned to promote aspen regeneration. Any unconsumed material would be left to discourage ungulate browsing.
- Operating period: Winter operating period would be December 1 through March 1 of each year. Summer operating period is July 1 through August 31.

**Tables A2-A6**. Percentages of current and historical successional class based on biophysical settings from the LANDFIRE program (DOI & USDA). Departure represents the deviation based on the percentage of land cover outside of the successional class for each biophysical setting.

| **A2.** Middle Rocky Mountain Montane Douglas-fir Forest and Woodland | Historic | Current | Departure |
|---|---|---|---|
| Early Development | 20% | 12.8% | -7.2% |
| Mid-Seral, Open | 30% | 0.0% | -30% |
| Mid-Seral, Closed | 15% | 1.6% | -13.4% |
| Late-Seral, Closed | 15% | 31.8% | +16.8% |
| Late-Seral, Open | 20% | 53.1% | +33.1% |
| Uncharacteristic | 0% | 0.7% | +0.7% |

| **A3.** Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest - Ponderosa Pine-Douglas-fir | Historic | Current | Departure |
|---|---|---|---|
| Early Development | 10% | 12.2% | +2.2% |
| Mid-Seral, Open | 30% | 1.5% | -28.5% |
| Mid-Seral, Closed | 15% | 81.4% | +66.4% |
| Late-Seral, Closed | 10% | 2% | -8% |
| Late-Seral, Open | 35% | 0% | -35% |
| Uncharacteristic | 0% | 2.9% | +2.9% |

| **A4.** Northern Rocky Mountain Lower Montane-Foothill-Valley Grassland | Historical | Current | Departure |
|---|---|---|---|
| Early Development | 5% | 0% | -5% |
| Mid-Seral, Open | 0% | 0% | 0% |
| Mid-Seral, Closed | 25% | 33.8% | +8.8% |
| Late-Seral, Closed | 70% | 0% | -70% |
| Late-Seral, Open | 0% | 0% | 0% |
| Uncharacteristic | 0% | 66.2% | +66.2% |

| **A5.** Northern Rocky Mountain Ponderosa Pine Woodland and Savanna | Historic | Current | Departure |
|---|---|---|---|
| Early Development | 5% | 12.9% | +7.9% |
| Mid-Seral, Open | 20% | 1.2% | -18.8% |
| Mid-Seral, Closed | 10% | 0.4% | -9.6% |
| Late-Seral, Closed | 10% | 36.8% | +26.8% |
| Late-Seral, Open | 55% | 46.3% | -8.7% |
| Uncharacteristic | 0% | 2.4% | +2.4% |

| **A6.** Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest - Larch | Historic | Current | Departure |
|---|---|---|---|
| Early Development | 10% | 19.5% | +9.5% |
| Mid-Seral, Open | 25% | 42.3% | +17.3% |
| Mid-Seral, Closed | 15% | 35.3% | +20.3% |
| Late-Seral, Closed | 20% | 0.1% | -19.9% |
| Late-Seral, Open | 30% | 2.2% | -27.8% |
| Uncharacteristic | 0% | 0.6% | +0.6% |

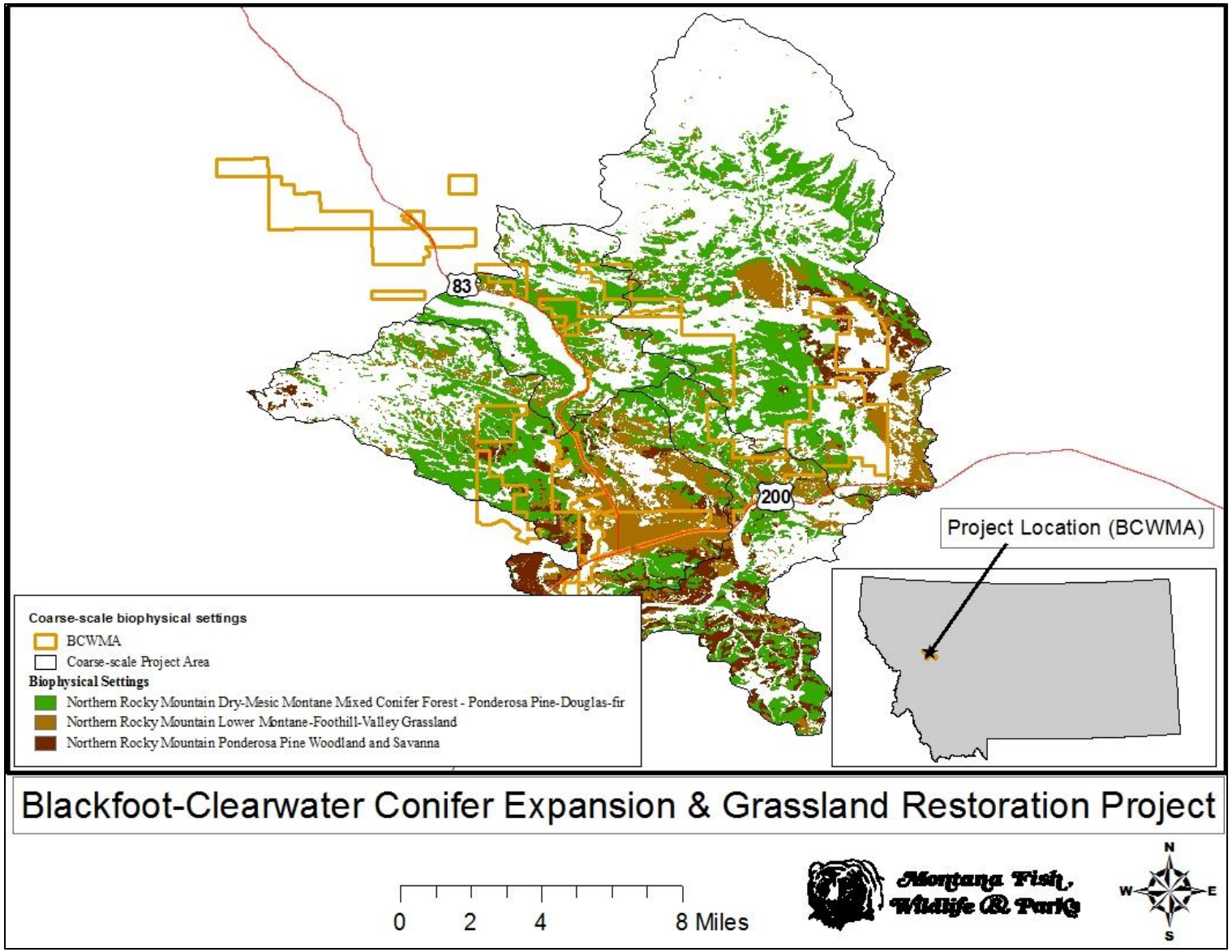


**Figure A1.** Coarse-scale project area with biophysical settings used as a historic condition baseline to compare with current conditions.

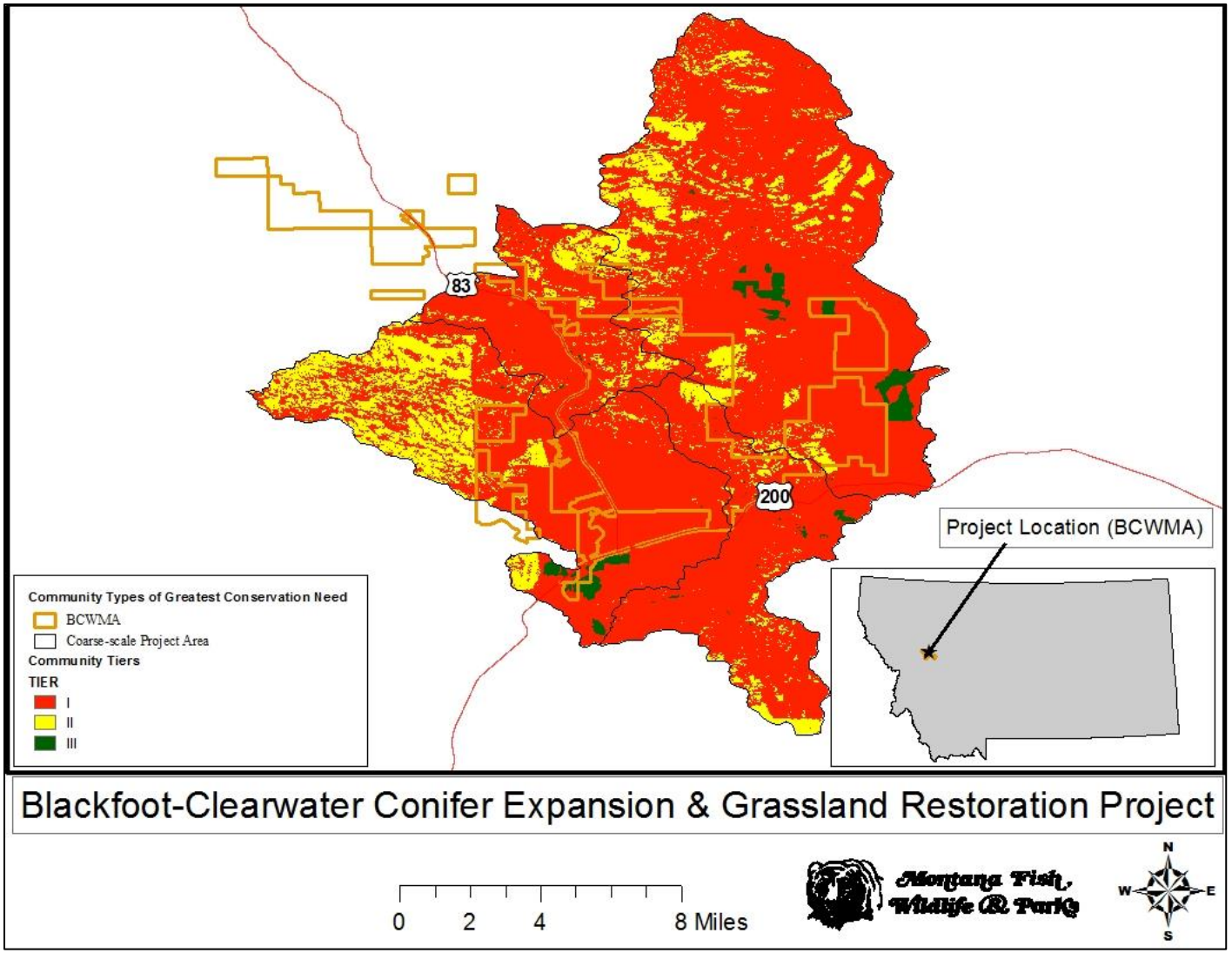


**Figure A2.** Statewide Wildlife Action Plan (SWAP), Community Types of Greatest Conservation Need Tier levels across the coarse-scale project area. The three Tiers represent greatest conservation need (Tier 1), moderate conservation need (Tier 2), and lower conservation need (Tier 3). The BCWMA is predominantly classified as a Tier 1 community type with greatest conservation need.

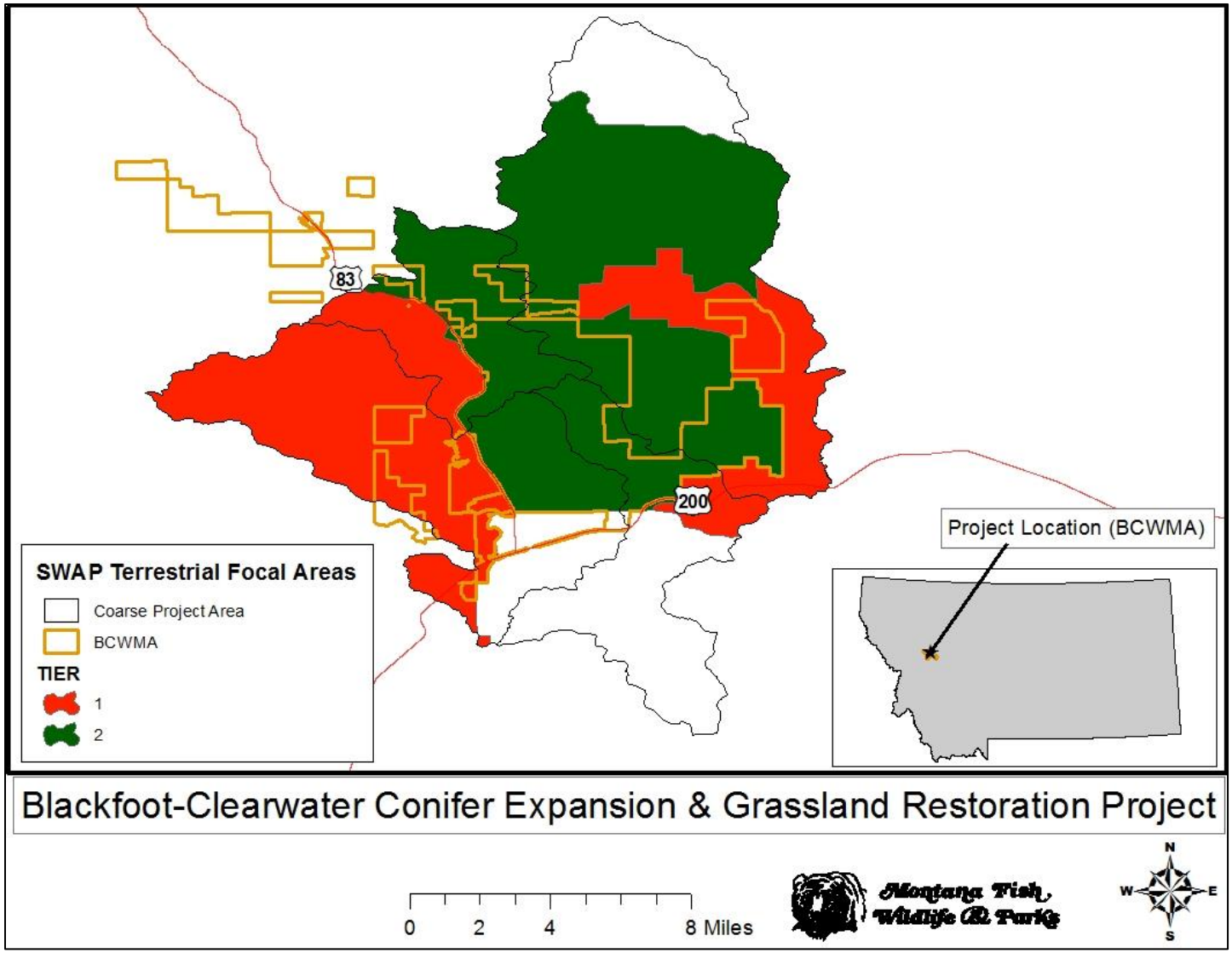


**Figure A3.** Statewide Wildlife Action Plan (SWAP), Terrestrial Focal Areas across the coarse-scale project area. The BCWMA is predominantly classified as a Tier 2 terrestrial focal area with the western most portion of the treatment area Tier 1.

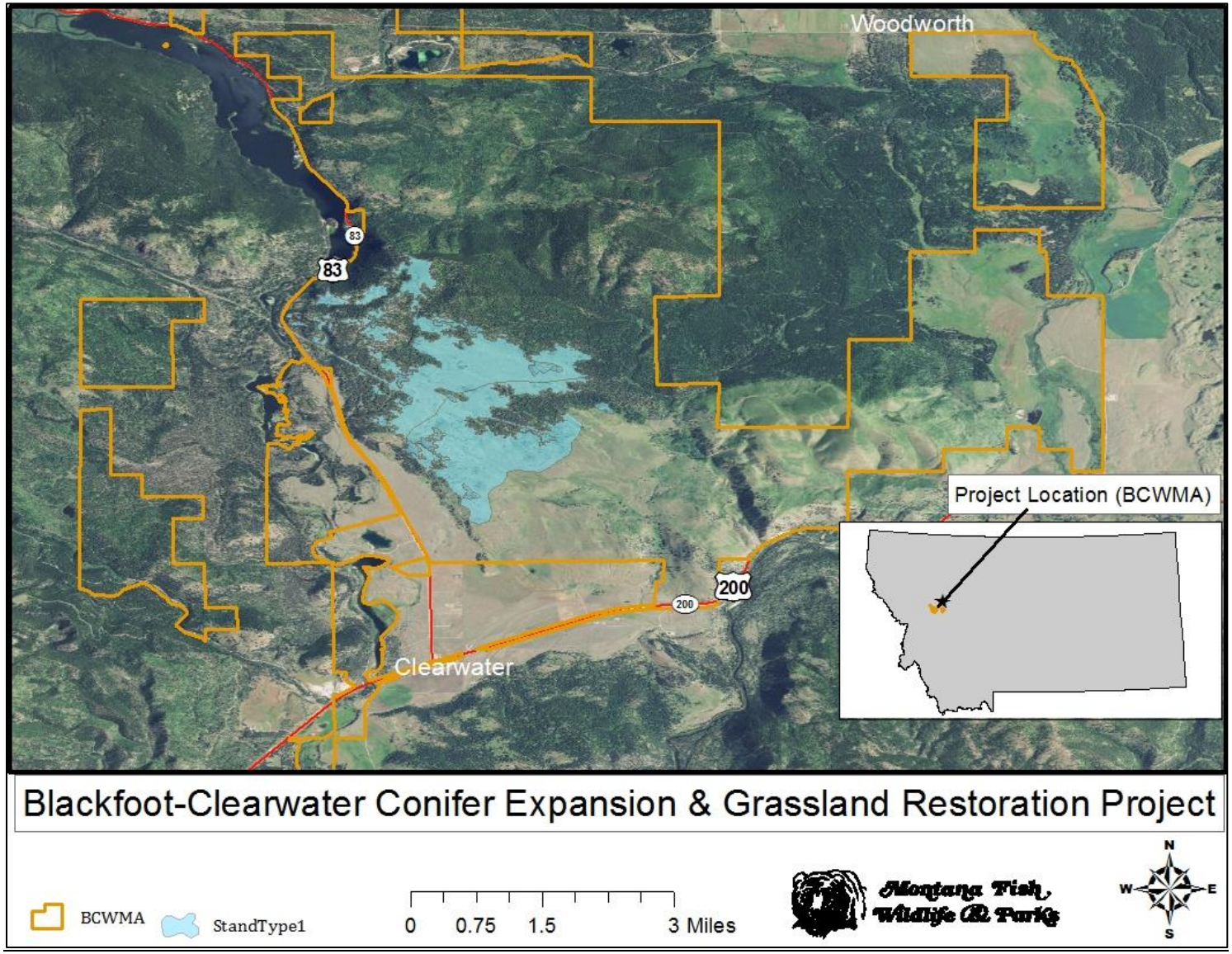


**Figure A5.** Project area map showing delineation of Stand Type 1 on the BCWMA.

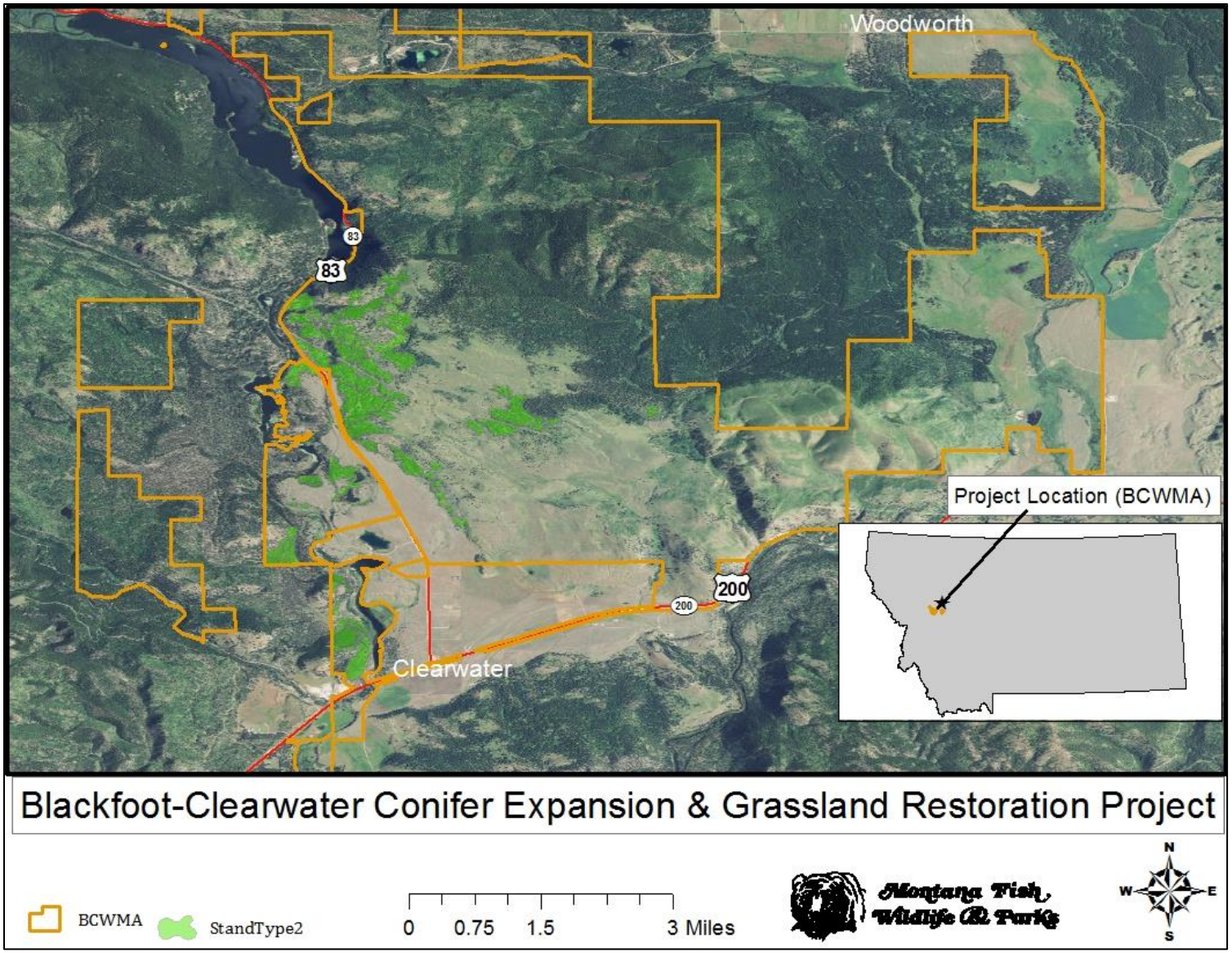


**Figure A6.** Project area map showing delineation of Stand Type 2 on the BCWMA.

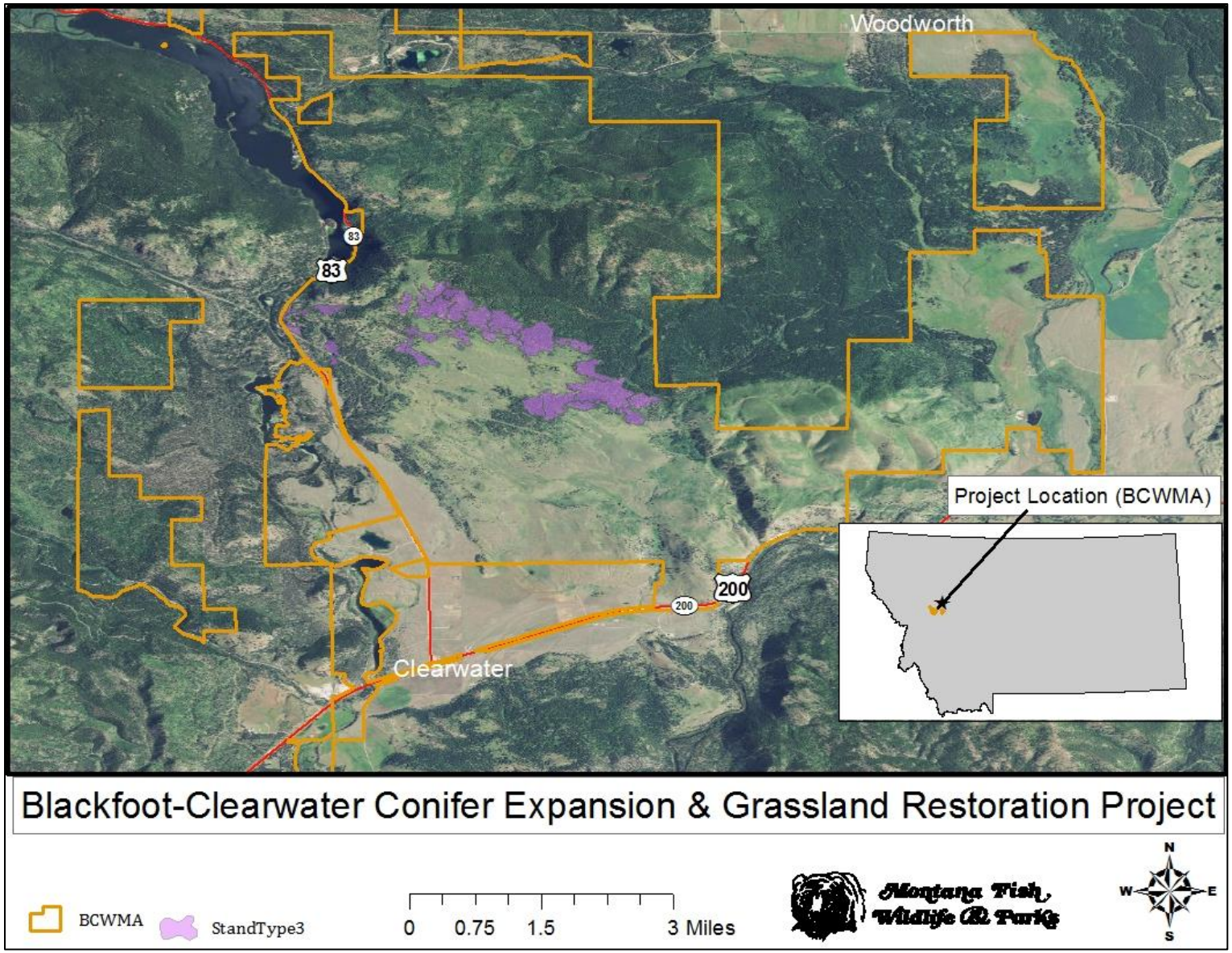


**Figure A7.** Project area map showing delineation of Stand Type 3 on the BCWMA.